



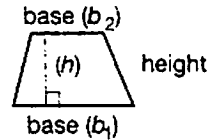
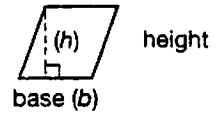
SKILL 10: Area of Parallelograms and Trapezoids

The *height* of a parallelogram or trapezoid is the length of a perpendicular segment that connects two parallel bases.

The formula to find the area of a parallelogram is

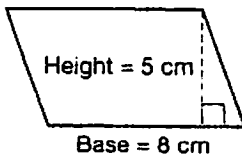
$A = bh$ where A is area, b is the base, and h is height.

The formula to find the area of a trapezoid is $A = \frac{1}{2}h(b_1 + b_2)$ where A is area, b_1 is one base, and b_2 is the other base.



Example 1

Find the area of the parallelogram.



$$\begin{aligned} A &= bh \\ &= 8 \cdot 5 \\ &= 40 \end{aligned}$$

The area is 40 cm^2 .

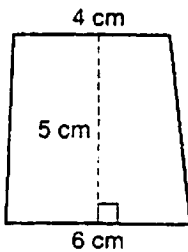
Use the formula for area of a parallelogram.

Substitute 8 for b and 5 for h .

Multiply.

Example 2

Find the area of the trapezoid.



$$\begin{aligned} A &= \frac{1}{2}h(b_1 + b_2) \\ &= \frac{1}{2} \cdot 5(6 + 4) \\ &= \frac{1}{2} \cdot 5(10) \\ &= 25 \end{aligned}$$

The area is 25 cm^2 .

Use the formula for area of a trapezoid.

Substitute 5 for h , 6 for b_1 , and 4 for b_2 .

Add.

Multiply.

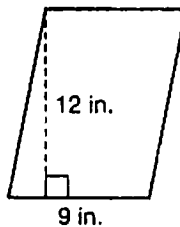
Guided Practice

Find the area of each parallelogram or trapezoid.

1. Base _____

Height _____

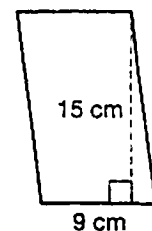
Area _____



2. Base _____

Height _____

Area _____

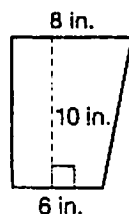


3. Height _____

Base b_1 _____

Base b_2 _____

$b_1 + b_2$ _____ Area _____

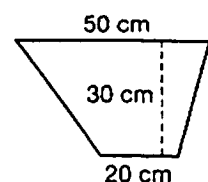


4. Height _____

Base b_1 _____

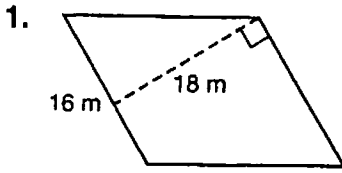
Base b_2 _____

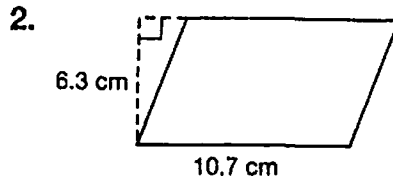
$b_1 + b_2$ _____ Area _____

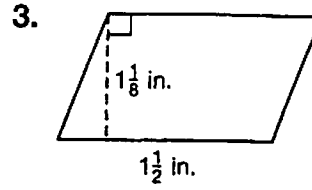


SKILL 10: Practice

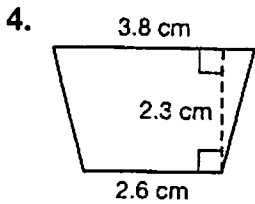
Find the area of each parallelogram.

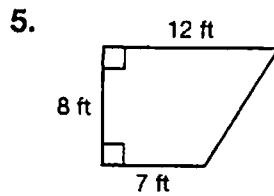


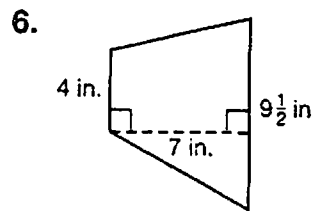




Find the area of each trapezoid.

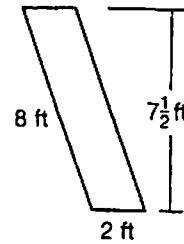






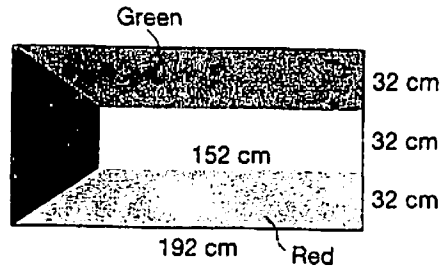
Solve.

7. A section of a sidewalk is shown at the right. It is shaped like a parallelogram. The measurements are shown. Find the area.



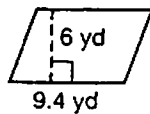
8. The flag of Kuwait is shown at the right. Find each area.

- a. Black region _____
 b. Green region (top stripe) _____
 c. White region _____
 d. Red region (bottom stripe) _____



TEST PREP

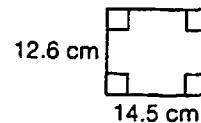
9. What is the area of the parallelogram?



Skill 10

- A 28.2 yd² C 54.2 yd²
 B 30.8 yd² D 56.4 yd²

10. What is the perimeter of the figure?



Skill 7

- F 27.1 cm H 91.35 cm
 G 54.2 cm J 182.7 cm